

## Chapter 5. Conclusions

1. A jellyfish-like nanostructure formed by nickel, gold and silicon oxide in the head part and amorphous silicon oxide in the feet part have synthesized *via* heat treatment of heating to 1000°C and maintaining for 2 hours.
2. The growth of jellyfish-like nanostructures should be under proper cooling rate ( 2°C/Sec ~ 0.8°C/Sec ) and suitable composition of gold percentage ( 20 at % ~ 40 at % ).
3. Density reduced carbon nanotubes could be grown based on the jellyfish-like nanostructures.
4. Field emission properties including turn-on voltage ( improving from 5.6 V/μm to 2.3 V/μm ) and enhancement factor ( enhancing from 1910 to 2386 ) would be improved as the density of carbon nanotubes decreased ( decreasing from  $2.2 \times 10^8 \text{ cm}^{-2}$  to  $3.3 \times 10^7 \text{ cm}^{-2}$  ).